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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/511,891

06/09/2005

Bud G. Harmon

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EXAMINER

SAYALA, CHHAYA D

ART UNIT

PAPER NUMBER

1761

MAIL DATE

DELIVERY MODE

09/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/511,891

Applicant(s)

HARMON ET AL.

Examiner

C. SAYALA

Art Unit

1761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3 and 5-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 13 recite a double negative and therefore admit the oxidizing agent to the waste stream.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harmon et al. (US Patent 6235339) in view of Roets (US Patent 4559146) and the admitted prior art in the specification at page 5, lines 6-10, and further in view of Reed (US Patent 4081378), Fullerton et al. (US Patent 4085041) and Othmer (US Patent 3772187).

Harmon et al. teach that using magnesium chloride instead of the prior art usage of iron chloride is beneficial. (See col. 4, lines 28-41). Harmon et al. teach treating organic waste streams containing animal fat, blood, tissue, etc. The amount of magnesium chloride: 0.5-5.0% by vol. The patent does not teach aeration. It does teach the magnesium chloride-dissolved air flotation process and the removal of the flocculated material. See col. 3, lines 60-67. The patent also teaches reducing the BOD to less than about 750 ppm. See claim 5. At col. 2, lines 42+, Harmon et al. teach one aspect where two salts are used and one embodiment where magnesium chloride is used. Further, Harmon et al. teach that combinations of waste stream components flocculation is enhanced when a small amount of a soluble aluminum compound is used.

Roets teaches chemically treating proteinaceous waste water, and then aeration of the waste water. Foam formed is removed during the aeration. See the claims that describe the steps. In this regard, Fullerton et al. teach at col. 2, lines 1-10, that oxygen aeration produces foam that is typically undesirable, which rises to the top and is removed.

The specification discloses that the aeration is performed as is known in the art. The prior art listed therein is said to accomplish the aeration. See page 5, lines 4-10. Othmer teaches coagulating and flocculating waste first before aeration, and then using a Venturi system for the aeration (col. 2, line 4, col. 4, lines 48-50) to reduce BOD (line 56). As for the time for aeration, lines 15-25 (col. 4) teaches some of the parameters to determine this. However, aeration time will depend on the degree of reduction of BOD

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required in the effluent and the nature of the BOD. See also col. 10, lines 42-44. Reed teaches that waste water streams (sewage effluents), show a reduction in BOD upon aeration. See title, abstract and col. 1. With regard to claim 10, note that Harmon teaches treatment with the oxidizing agent "may be necessary if any color or residual material remains in the fluid fraction". Therefore to eliminate such a step would have been obvious based on Harmon's teaching alone.

It would have been obvious to combine the chemical treatment of proteinaceous wastes of Harmon et al. with an aeration step as shown by the Roets invention, which is also drawn to the same endeavor, and uses iron chloride instead of magnesium chloride, which is followed thereafter by aeration. Given the benefits of using magnesium chloride instead of iron chloride as shown by Harmon et al., to substitute Fe chloride with Mg chloride would have been prima facie obvious. Reed teach that aeration also reduces BOD in waste water treatment, then such disclosure provides the motivation to combine Harmon et al's magnesium chloride treatment to reduce BOD, with aeration to reduce BOD, in the same manner as Roet, i.e. chemical treatment followed by aeration, and to substitute the addition of the aluminum compound (Harmon et al.) with aeration. In doing so, it would naturally flow from prior art teachings that the BOD would have been reduced to the same extent. See *American Infra-Red Radiant Co. v Lambert Indus., Inc.*, 360 F.2d 977, 986 [149 USPQ 722 (CCPA 1958)], (8th Cir.) (quoting *Application of Libby*, 255 F.2d 412 [118 USPQ 194 (CCPA 1958)], *CERT. DENIED*, 385 U.S. 920 [151 USPQ 757](1966). It would also have been obvious to remove any foam formation for the reasons shown by Fullerton et al. and Roets. To use

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any aeration system, including the Venturi system as shown by Othmer would have been obvious, since no unobviousness in this regard has been established herein.

### ***Response to Arguments***

Applicant's arguments filed 6/20/2007 have been fully considered but they are not persuasive.

With regard to applicant's remarks addressing the 35 USC 103, at page 6 of the response, upon careful review of the Harmon et al.'s reference, the following disclosure therein is specifically brought to applicant's notice: (col. 2, lines 42+)

In one aspect of the present invention two salts are used to replace (in whole or in substantial part) the FeCl.sub.3 used in the prior art. The first of those salts is a soluble magnesium salt, which is dissolved in the organic waste stream. The Mg salt is provided in an amount effective to induce flocculation of organic material when used in conjunction with the other materials. Preferably the magnesium salt is MgCl.sub.2.

In the preferred embodiments between 1 L and 10 L of technical grade MgCl.sub.2 (approximately 32% MgCl.sub.2 solution) per 1000 L of effluent is added to the aqueous waste stream. Between 2.0 and 4.0 L per 1000 L of effluent is even more preferred, although no adverse effects other than economic waste result from the addition of larger amounts of magnesium compound. In other preferred embodiments MgCl.sub.2 is added to provide between about 0.5-5.0% MgCl.sub.2 by volume of waste material, with 0.75% to 1.5% MgCl.sub.2 being more preferred.

In some embodiments combinations of waste stream components flocculation is enhanced when a small amount of minute quantities of a soluble aluminum-based compound (preferably an aluminum salt) is dissolved into the effluent in addition to the MgCl.sub.2. Many aluminum salts can be used, with AlCl.sub.3, alum, aluminum chlorohydrate, sulfonated PAC (aluminum chloride and acrylamide), and aluminum sulfate being most effective in testing to date. AlCl.sub.3 is most preferred.

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As with the magnesium compound, the aluminum salt is provided in an amount effective to induce flocculation in conjunction with  $\text{MgCl.sub.2}$  and polymer addition. Generally, an effective amount is between about 0.05% and about 0.25% aluminum salt (w/v). When a 50% solution is used, about 0.1 L to about 0.5 L per 1000 L of effluent is preferred, although as with the  $\text{MgCl.sub.2}$ , somewhat greater amounts may be required for a particular waste stream.

Thus the patent teaches an embodiment, with two salts and in the preferred embodiment the magnesium chloride amounts with the teaching that addition of the aluminum compound enhances flocculation.

Harmon et al. is said to add oxidizing agents to reduce BOD (see page 6, last paragraph of the remarks). Such disclosure could not be found in Harmon et al. Harmon et al. realize a BOD of 800 ppm or less after flocculation and no oxidizing agent at this point. (See col. 4, lines 1-3). Also see Example 8 that asserts the removal of residual color was achieved by using oxidizing agents. To eliminate a step and its concomitant function is prima facie obvious.

Roets is relied on only for its teaching the same steps, i.e. chemical treatment followed by aeration. Fullerton is relied on only for showing aeration, subsequent foam formation and foam removal.

In response to Othmer, the applicability of this reference is described at the third full paragraph in the rejection.

With regard to Kaczmarek et al., applicant's arguments are moot since that reference has been withdrawn.

With regard to remarks at page 7, last paragraph, the specification has now been referenced in the rejection by page number and line number, for applicant's convenience. Note too that at page 8 of his remarks, applicant states:

Applicants' argument was that despite the fact that the specification states that aeration time can be determined by one skilled in the art without undue experimentation, this is only true in light of Applicants' new teachings in the specification that  $MgCl_2$  is much more efficient than  $FeCl_3$  in reducing BOD. This statement cannot be taken out of context and interpreted as though it said: "The time of aeration depends on the beginning BOD and COD levels of the effluent to be treated and the desired final levels. This can be determined based only on prior art teachings and not on the new teachings herein without undue experimentation."

While applicant may hold that Mg chloride is much more efficient than iron chloride in reducing BOD, for the reasons given above and the teaching and suggestion of Harmon et al. it would have been obvious to substitute iron chloride with magnesium chloride. With respect to the first full paragraph at page 9 of applicant's remarks, the response to this point raised, i.e. with respect to the aeration time, has already been addressed in the last Office action (filed 4/16/07) and the same applies here too.

The remaining remarks repeat those made earlier either here or in a previous action and as such have been addressed previously too.



**Conclusion**

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. SAYALA whose telephone number is 571-272-1405.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
C. SAYALA

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Primary Examiner  
Group 1700.